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(57) Abstract :  
 A visual programming interface (101) for non-programmers in industrial robotics (102) is disclosed. The system includes a workflow canvas (106), validation module (107), universal adapter (108), task suggestion engine (109), and a 3D simulation viewer (110). The invention enables users without coding experience to create, validate, and deploy robot workflows efficiently through intuitive graphical tools. The interface ensures cross-platform compatibility, real-time error detection, task recommendations, and collision avoidance simulation, improving industrial automation accessibility and reliability.

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